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(54)【発明の名称】 遊技機の上皿

(57)【要約】

【課題】 遊技中に上皿の球詰まりが発生したら打撃振動を与えて自動解除を行う装置を提供すること。

【解決手段】 上皿の皿部の裏側内部に、上流側に第一遊技球検出部と、下流側に第二遊技球検出部をそれぞれ設け、更に皿部の湾曲部に電磁石で構成された誘導装置を設ける。遊技中に遊技球が上皿において球止まりが発生したときは、一定時間後に電磁石に間歇通電して球止まりをした遊技球を下流側に流す。第一遊技球検出部で遊技球を検出しているが第二遊技球検出部が遊技球を検出しないときは遊技球同士で噛み合ったと見て特に噛み合う皿部の湾曲した絞り込み部分に電磁石を設置して湾曲部にある遊技球を引き上げることで解決を見る。これにより球止まりが発生したときは遊技客が上皿を叩くことも無くなり店員に叩くなと言われずに済むので遊技客は遊技に没頭できる。

## 【特許請求の範囲】

【請求項1】 遊技機本体に開閉可能に取り付けられる上皿であって、

該上皿に遊技球の第一遊技球検出部と第二前記遊技球検出部と誘導装置とを備えたことを特徴とした遊技機の上皿。

【請求項2】 請求項1記載の遊技機の上皿において、前記第一遊技球検出部が前記遊技球を検出して前記第二遊技球検出部が遊技球を検出しないときは玉詰まりと判断して前記誘導装置が遊技球を誘導させることを特徴とした遊技機の上皿。

【請求項3】 請求項1または2記載の遊技機の上皿において、

前記誘導装置の作動は指定される時間後に前記誘導装置を作動させることを特徴とする遊技機の上皿。

【請求項4】 請求項1から3記載のいづれかの遊技機の上皿において、

前記誘導装置の作動は発射装置が作動しているときのみ作動可能にしたことを特徴とする遊技機の上皿。

【請求項5】 請求項1から4記載のいづれかの遊技機の上皿において、

前記誘導装置が作動するときは音声報知と可視表示させる、または音声報知または可視表示させることを特徴とする遊技機の上皿。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】 本発明は、パチンコ機、アレンジボール、雀球等の遊技球を使用する遊技機の前面に取り付けられる上皿に関する。

## 【0002】

【従来の技術】 従来遊技機の上皿は遊技開始前に遊技球を所定の金銭または金銭に換算されたカード等で玉貸機または玉貸装置で借り受けて遊技を行う上皿で、この上皿は上皿の上流側から下流側に向かって先細に絞りこまれ、遊技球を1列に整列させながら上皿の内部に取り付けられている玉送装置に流れ込むような構造である。遊技機の前面右下部には発射ハンドルが設けられていて、その発射ハンドルには発射調節と発射開始のスイッチを作動させるピンが付けられたレバーが回動自在に併設され、その発射調節レバーを時計方向に回転操作すると、遊技球は発射装置により玉送装置を作動させて玉送装置から発射点に送り出され、発射点にある遊技球は発射査で打撃されるものである。打撃された遊技球は誘導レールに沿って遊技盤面に飛球し、飛球した遊技球は遊技盤面に設けられた入賞装置にときどき入賞する。入賞したときは賞品球払出装置で賞品球である遊技球を上皿に払い出し、払い出された遊技球は再び発射点に流れ込むと言った構成動作である。

【0003】 このように遊技球はこの発射動作を繰り返す度に上皿の上流側から下流側に流れながら常に発射点

に移動しているのであって絞り込まれた上皿の一部に遊技球は遊技球の互いの流れ回転方向が複雑であるので玉詰まりが起きる。これにより遊技球をよく磨くことや上皿の清掃を絶えず行っているが、すぐに汚れが付着してときどき遊技球は詰まるのである。遊技中の遊技客は、遊技球が詰まれば上皿を叩いて遊技球の詰まりの解除を行なっていたが、ときに強い衝撃を与えることで上皿はビス止め部分よりひび割れ壞すことしばしあり、交換用の上皿が無いときはこの遊技機の製造メーカーに注文をして、上皿が到着するまで遊休台として余儀なくしていた。

## 【0004】

【発明が解決しようとする課題】 上述のように遊技球が絞り込みの部分で噛み込むと言う欠点はいまだに解決されていない。この上皿の噛み込む状態詳細説明は図8

(a)、(b)、(c)によって説明をする。図8(a)は従来の詳細を図示しない遊技機に取り付けられる上皿80におけるもので、その上皿を上から見たものであって上皿飾85を矢印Sから左側を切除した図である。上皿80には、皿部81があってその皿部81に遊技球86を投入して図示しない発射レバーを操作すれば発射が開始される。遊技球86を発射すれば遊技盤(遊技盤及びその関係を省略する)に設けられた誘導レールを伝って遊技盤略中央に打ち込まれる。打ち込まれた遊技球86は、遊技盤に設けられた入賞具に入賞すると遊技球86が賞品球として賞品球通路82を通って皿部81の上流側88に払い出される。上皿80には、球抜レバー83が設けられていて左側に動かせば(詳細省略)上皿80にある遊技球86は傾斜が設けてあるので下流側89から順次上流側88方向へと図示しない下皿に流れ遊技球86を抜き取ることができる。上皿80に遊技球86を投入もしくは賞品球として払い出された遊技球86は発射動作によって球送装置92(詳細を省略)が作動し球送装置92の供給口90より矢印Z方向に図示しない発射点に供給される。

【0005】 ここで、遊技球86は上流側88から下流側89へ移動するとき図8(b)に示すように立直部91にそって流れるときは矢印Dの方向に回転力が働いているが、その隣接する遊技球86は矢印D方向に対して

遊技球86の回転方向がA方向である、この為それぞれの回転軸が異なって互いにブレーキを掛ける。他方、湾曲部87から見たときは湾曲部87に沿った所の遊技球86の回転力関係はA、B、Cの矢印のような方向で、立直部91にある遊技球86と互いに複雑な力関係が発生して、それぞれ隣接する遊技球86に対し回転面が接触してブレーキがかかり、それぞれの遊技球86が正方向に回転しようとしても動かなくなり、前述状況と重なって、つまり球詰まりと言う結果になる。さらに詳しく述べ図8(c)で説明すればまず、図8(c)は図8

(b) 矢印方向Q、Q'の断面図で球詰部84を上流側

88から見た状態を示す。玉詰まりは遊技球86xの矢印E方向と遊技球86yの矢印F方向にそれぞれ力が働いている。遊技球86xは矢印H方向、つまり立直部91に沿って転動しようとする。一方、遊技球86yは湾曲部87に押されて矢印G方向に転動する力が働いている。

【0006】図からみて遊技球86yの転動方向は遊技球86xに押し込むように進むので略対抗向する状態となるので遊技球86x、86yは共に動けなくなる。以上が玉詰まり現象でこの玉詰まり対策を種々考えられ次に述べる方法等が挙げられるが、少なからずとも欠点を擁している。遊技球86は上述のような状況下におかれているので構造上、セラミック振動子等で振動を与えて玉詰まりを解除する方法も考えられている。ところがこのセラミック振動子は低い周波数(数HZ)と波形の間隔の広い動作では利用できないの玉詰まりを崩すことは困難である。高い周波数の振動を与えたときは遊技球86xと遊技球86yがよけいに噛み込むと言う欠点がある。またソレノイド等で皿部81の一部を叩くといった球詰まりを解除する方法も考えられるがこの叩くと言った衝撃振動では遊技客にしてみれば気分を損ねる恐れがありこの方法では好ましくなく未採用である。球詰まりが発生して遊技客が上皿を叩けば当然ながら店員が注意を促す、この為、店員と遊技客とにトラブルが生じていた。このトラブルは実際に球詰まりなのか、ただ単に入賞が悪く出玉率が低く感じて気分的に悪く叩いたものなのかはその場にいない店員には判断ができないのでこのようなトラブルも起きる。また球詰まりが多く発生するようになれば店員は遊技客を立ち退かせて上皿80の皿部81を掃除しなければならない、遊技客を立たせると言うことは遊技を無理に中断させるので気分的に悪いときは遊技自体をやめて帰ってしまうと言うことになりかねない。このことが多くなってくると入りする時間帯であれば遊技店自身の売り上げに大きく影響していくと同時に、普通一般的な出玉率で営業していても遊技客は出玉率の悪いパチンコ店と錯覚を起こすようになってくる。

#### 【0007】

【課題を解決するための手段】上記の課題を解決する為に請求項1に示すように遊技機本体に閉鎖可能に取り付けられる上皿で、その上皿には遊技球を検出する第一遊技球検出部と第二前記遊技球検出部を設け、遊技球を誘導させる誘導装置とを備えた構造である。次に請求項2に示すように上皿の上流側に設けられた第一遊技球検出部が遊技球を検出して下流側に設けられた第二遊技球検出部が遊技球を検出しないときは遊技球が停滞しているものと判断し誘導装置が作動して遊技球を誘導せるようにした。上記誘導方法としては請求項3に示すように上皿の上流部に設けられた第一遊技球検出部が遊技球を検出して、下流部に設けられた第二遊技球検出部が遊技

球を検出しないときは設定された時間後に誘導装置を作動させるようとする。遊技客が遊技をしないときは請求項4に示すように当誘導装置の作動をさせないようにした。次に請求項5に示すように、誘導装置が作動するときは音声の発声と表示を同時に行う、または音声のみで報知するか、又はランプ等のみで表示させるようにして遊技客に対しての報知手段を設けた。

#### 【0008】

【発明の実施の形態】上皿の上流側に第一遊技球検出部を設けて、下流側にも第二遊技球検出部を設け、遊技球の投入もしくは賞品球として払い出された遊技球は第一遊技球検出部で遊技球を検出したときに下流側に設けられる第二遊技球検出部が遊技球を検出しないときは球詰まりと判断ができる。このことから遊技球が噛み込んだときは噛み込み易い場所である絞り込みの部分を少しでも動かせば詰まった所が崩れるのでこの部分を動かす為の誘導装置を設けることで解決ができる。場合によっては第一検出部が遊技球を検出していて第二検出部が遊技球を検出をしないことも瞬間にあり得る、詰まつてもいいのにこのような現象は絶えず発生するので、発射数個分の時間が経っても同じ検出内容で有れば球詰まりと判断ができるので時間差を設けることでこれも解決できる。ただこの時間設定は、送球装置に普通7個位の遊技球が保持されているのでこの7個分の遊技球の発射が終了する以前に誘導装置を作動させるようにすればよい。つまり発射速度が1分間に100球の発射であるから検出してから約4秒後に誘導装置を作動させることが望ましい。

【0009】第一遊技球検出部と第二遊技球検出部の取り付けに関しては、上皿に段差ができるとかえって球詰まりを起こし易いので上皿の皿部底面から金属探知システムの応用ができる。また上皿の下流側の第二検出部が遊技球による圧力が無くなった状態が発生したときは球詰まりとも判断できる。つまり圧力センサーの応用で構成することができる。この場合圧力センサーによって段差ができないような配慮も必要である。遊技客が遊技をしないときは、発射動作をしないので第一遊技球検出部と第二遊技球検出部および誘導装置の作動は必要がなくなるのでそれぞれの電源をOFFにする。これにより省電力化ができる。このとき遊休表示等のイルミネーション以外の電源もOFFにすれば尚一層良い。

【0010】誘導装置を作動するときは音声やランプ等で報知表現をしないと遊技に熱中している遊技客はその動作で驚かせることになる。この場合は入賞や大当たり等の遊技客にとって有利な状況となる表現はかえって遊技客が間違えてあわてさせてるのでランプであれば点滅のスピードを遅くするとか、ビブラホン音のような柔らかい感じの表現が望ましい。上記の他にも上皿に上流側から下流側へある特定の凸状または凹状の線条を設けて遊技球の流れ形状を規則的に並ぶようにする方法も良い

が、この場合線条の間隔は遊技球が最小単位で並ぶと、並んだ形状が三角形でその底辺から頂点に対し  $n \cdot 5$  個になるので遊技球の直径の  $n \cdot 25$  個または  $n \cdot 75$  個分の間隔が必要となる。これは、遊技球が完全円心であれば良いが、一般使用される遊技球は遊技球の表面に刻印が施されているとの球面が完全円心でないことで、遊技球を使用する遊技機は絞り込みを設けた誘導樋を多用しているからその部分で球噛みとなり詰まり現象となる。

【0011】電気的に作動する誘導装置は電子機器の応用であるマイクロコンピュータやICロジック等で作動させるのが普通である。遊技球とプラスチックで構成される遊技機等は静電気が起きやすく、また遊技客の電子的悪戯等で電気的に作動させるマイクロコンピュータやICロジックは暴走現象を起こしたりハンギングアップ等の異常現象を起こすことがある。この異常現象は電源を切るカリセットを行わない限り誘導装置に永久通電が行われ内部温度の上昇で焼損すると言うことがあり、この異常現象があっても良いように誘導装置にはサーモスタットやバイメタル等の温度により電源が遮断できるようにすることや、ハード割込で絶えず特定初期設定を行う等の対策を盛り込んでこの異常現象に対応するようになることが望ましい。

【0012】上述のように本発明は上皿に限らず遊技球の通路で絞り込みなった誘導樋や入賞球樋等にわたって広く応用できることは可能であることは言うまでもない。次に本発明の構成を一層明確にするために好適な実施例を図面と共に説明することにする。尚、本発明の実施の形態は、下記の実施例に何ら限定されるものではなく、技術的範囲に属する限り種々の形態で本発明を採用することができる。

#### 【0013】

【実施例】図1は本発明の遊技機取り付けられる上皿を採用した遊技機本体を示す斜視図である。本実施例の遊技機10は、図を省略する遊技機設置島に設置され釘等で打ち止め固定される外枠12を装備してて、その外枠12の右外側にはヒンジ13が上下に設けられている。外枠12には上下のヒンジ13を支軸にして開閉可能に内枠14が填められ、その内枠14には、図示しない各種入賞口や障害釘等を配置し誘導レール18を敷設した遊技盤11が着脱可能に取り付けられている。内枠14には、略中央に金枠17が取り付けられその金枠17の内側には詳細を図示しないガラス枠が金枠17の左側を支軸にして開閉可能に取り付けられている。内枠14の下部には、上皿15、下皿16及び発射ハンドル20が取り付けられると共にその発射ハンドル20の外周には発射調節レバー21が回動可能に取り付けられている。発射ハンドル20の内部には発射調節レバー21に連動するようにした詳細を図示しない発射作動スイッチが設けられており、発射調節レバー21を時計方向に回せば

発射作動スイッチがONとなり発射が開始される。発射調節レバー21は遊技球27の発射力の強弱調整もできるので、さらに時計方向に回せば発射力が強くすることができます。

【0014】遊技球27を遊技盤11に発射すると、遊技球27は時折入賞口に入賞する。入賞が多く続くと遊技球27が多く上皿15に賞品球として遊技球27が払い出される。更に入賞が続けば遊技球27は下皿16にあふれ、また更にあふれが続くと下皿16が満杯になり図示しない満杯検知スイッチが働いて遊技球27の発射を止める。発射が停止したときに、その状況を示すための満杯表示24が設けられているのでこの表示も行われ、この満杯表示24を設けることで遊技客は発射の停止がなぜ行われたかを知ることができる。下皿16には下球抜レバー23が付けられておりこの下球抜レバー23を右に移動させると下皿16に保有している遊技球27を抜き取る事ができる。内枠14の上部に上表示装置25と右側には横表示装置26がそれぞれ設けられ、遊技中のゲームの内容について詳細を省略する大当たりが発生するとそれそれが内部にあるランプを点滅もしくは点灯させて遊技客にその状況を報知することができる。

【0015】図2は本発明の上皿15を採用した遊技機10の裏側を示す斜視図である。遊技盤11の裏側には、遊技盤11を内枠14とで固定するための機構盤19が設けられ、この機構盤19を外すと遊技盤11を取り出す事ができる。機構盤19の上部には球タンク31が備えられ内部には遊技球27を保有し、次に続く樋32で賞球払出装置28に接続されている。したがって、遊技盤11の表に図示しない入賞具に遊技球27が入賞すると賞球払出装置28が作動して賞品球として遊技球27が上皿15に払い出され、次に遊技球27は球タンク31からタンクレール32と樋32を介して遊技球27を賞球払出装置28に補充される。内枠14裏面には、発射樋30を付けた発射装置29が機構盤19の下に位置して取り付けられている。発射装置29には、発射制御装置65が設けられていて前述したように発射調節レバー21を時計方向に回せば発射制御装置65が作動して遊技球27の発射ができる。機構盤19には詳細を後述する賞球払出装置28を作動させる制御装置64が設けられている。

【0016】図3により発射装置29の動作状況の説明をする。図3は遊技球27の供給と発射のもよを示す図であり、図4(c)に示す上皿15に取り付けられる送球装置34と図2に示す発射装置29とのそれぞれの連携動作を示す図である。遊技球27を打球するための発射樋30は発射ベース63に設けられた発射軸42に固定されている。発射ベース63には発射モータ33が詳細を図示しないステーで取り付けられ発射モータ33の軸には発射カム36が取り付けられている。発射樋30にはローラーアーム43が取り付けられ発射カム36

の外周を伝うような位置にあって発射モータ33が時計方向に回転をするとローラーアーム43が発射カム36を伝って発射槽30を揺動させる。発射槽30にはハンドル小物37が固着されていて、送球装置34に穿設されたレバー軸41にはめ込まれている送球レバー38は発射槽30が揺動する度にハンドル小物37で共に揺動する。送球装置34には送軸40が穿設されその送軸40にアヒル39がはめ込まれている。このアヒル39は送球レバー38の一端により送軸40を支軸にして上下に揺動することができる。アヒル39が点線で示す位置になると遊技球27をその内部に1球加え込むことができて、実線で示す位置になると加えた1球の遊技球27を発射レール45の発射点35に置くことができる。したがって、発射モータ33が作動するとこの発射槽30は矢印D、P方向に揺動をして発射点35にある遊技球27を打球する。発射槽30の矢印P点の位置になると送球装置34も作動して遊技球27を発射点35に送り出す。次の瞬間図示しない引きバネで付勢されているので遊技球27を発射することができる。遊技球27を発射した後の送球装置34には、次の遊技球27を導入口44より補給され、導入口44は上皿15の図4に示す皿部48に連通しているので皿部48に保有される遊技球27を順次送り出す。次に前述の皿部48は図4により詳細を説明する。

【0017】図4は本発明品の上皿15で略投影4面図を示したものである。図4(a)は平面図で、(b)は正面図、(c)は背面図、(d)は右側面図である。上皿15には、賞品球通路46が設けてあり入賞したときは賞品球が払い出され、賞品球である遊技球27はこれより皿部48の上流側52に導出される。上皿15の皿部48は傾斜角が設けてあるので上流側52に払い出された遊技球27は下流側53の供給部54へと流れる。上皿15には第一検出部50が(a)に示すように設けてあり第二検出部51が(c)に示すように設けてある。

(c)に示すように上皿15の背面には送球装置が設けてあり導入口44は皿部48の下流側53に接続されている。したがって、皿部48にある遊技球27は供給部54から導入口44を経て送球装置34に導入され、アヒル39の作動により供給口47より発射点35供給される。上皿15には上球抜レバー22が設けてあり矢印反G方向に付勢してあるので矢印G方向に移動してはなすと自動的に元の位置に復帰する。上球抜レバー22は(c)に示すように(詳細を省略)矢印G方向に運動移動で上皿15の遊技球27は図示しない供給口47の近傍に設けられる図5に示す球抜通路55を通って球抜出口49より下皿16に排出される。

【0018】次に、本発明のセンサーである第一検出部50と第二検出部51の詳細を図5(a)、(b)、(c)で説明をする。図5(a)は上皿15の平面図で詳細を説明する為に示す上皿15の上一部をSからS'

10 で削除した図である。図5(b)は(a)のx、x'の断面図で(c)はy、y'の断面図である。上皿15の上流側52には第一検出部50が設置され下流側53には第二検出部51が設けられている。上皿15には、立直部61があって金属製で上皿15の本体骨組み構成としていて皿部48が立直部61に固定されている。上皿15の内部には誘導装置である電磁石60が設けられており、皿部48の湾曲部62にその電磁石60が取り付けられている。皿部48の底面には第一検出部50が設けられ、立直部61には第二検出部51が設けられている。本実施例の各検出部は、すでに公知である発振コイルにより発振を行い磁性金属か接近すると発振が停止すると言った方式を採用している。このほかにもリードスイッチと磁石とを組み合わせたものや、ホール素子と磁石を組み合わせたもの等の磁石を応用した磁性体検知センサー等があり、これらの検知センサーに付いては公知のものであるから本実施例では詳細を省略する。

【0019】次に、本発明の課題である噛み合った遊技球27をどのようにして崩すかは図6で詳しく述べる。  
20 図6の(a)は遊技球27A、27B、27C、27Dにより噛み合って電磁石60の非通電状態の平面図であり、(b)はその噛み合った状態でT、T'破断線の断面図である。皿部48で噛み合った遊技球27A、27B、27C、27Dは、電磁石60の通電により(a')に示すように遊技球27が立直部61と電磁石60と磁気的につながるように並び替えが行われ、破断線T'、T''の断面(b')で見れば遊技球27Cと遊技球27は、電磁石60によって湾曲部62の上方に引き寄せられる。したがって、遊技球27A、27B、27C、27Dは噛み合った状態と異なった形状になるので通電を遮断すれば並び変えられた結果となり下流側53にスムーズに流動させることができる。

【0020】次に本装置の電気的動作を図7で説明するが、本装置に採用した制御装置64の電子回路は一般的であり詳細を省略し、本装置の部分をブロック図に基づいてその動作を説明する。図7(a)について、破線左側は内枠14に組み込まれている。破線右側は制御装置64であり、その制御装置64には発振器68、タイマー回路67、電源制御回路70、AND回路69が設けられている。誘導装置である電磁石60は上皿15に設置されている。電源制御回路70は各ブロックへの回路電源ライン74を通じて電力を供給している。発射制御装置65からのタッチ制御信号66と、第一検出部50からの第一検出信号56とタイマー回路67を介して第二検出部51からの第二遅延信号58をAND回路69に入力している。発射制御装置65からの電源制御信号73は電源制御回路70の制御を行っている。発射ハンドル20に設けられた発射調節レバー21で発射を開始するとタッチ信号72が発生して発射制御装置65を50 介して発射装置29を駆動させ、また発射制御装置65

はタッチ制御信号6 6も同時に発生する。発射制御装置6 5は電源制御回路7 0も制御し、タッチ信号7 2が入力されると各ブロックへ電力の供給も開始される。

【0021】図7（b）t 1は発振出力である発振信号5 9である。t 2はタッチ入力があったときのタッチ制御信号6 6である。t 3は第一検出部5 0からの第一検出信号5 6をタイマー回路6 7で反転し、t 3'となつた第二遅延信号5 8を示しており、t 3「H」レベルは遊技球2 7を検出してないときである。t 4はAND回路6 9の玉詰まりが発生したときの出力状況である。発射の開始でタッチ制御信号6 6がt 1となってAND回路6 9に入力され、上皿1 5に遊技球2 7があれば第一検出部5 0は図示しない「H」レベルでAND回路6 9に入力される。第二検出部5 1で遊技球2 7をE点において第二検出信号5 7として検出すれば、タイマー回路6 7でt 3'に反転され第二遅延信号5 8としてt 4となりAND回路6 9に入力される。発振器6 8はt 1に示す信号を発して発振信号5 9としてAND回路6 9へ送出している。AND回路6 9の出力は誘導装置である電磁石6 0に接続されていて、AND回路6 9の入力のすべてが「H」レベルになったときは、その出力は

「H」レベルで電磁石6 0をONにする。タイマー回路6 7の時間動作は、遊技球2 7の発射個数の最大個数7個分のt Xで示す時間が設けられ、発振器6 8の振幅t 2は、遊技球2 7の発射個数2個分の振幅時間が設けられている。t 1、t 2がそれぞれ「H」レベルであるときは、第一検出信号5 6が「H」で、t 4が「L」レベルになれば玉詰まりが無く通常に発射している状況で、AND回路6 9への入力のすべてが「H」レベルではないのでAND回路6 9の出力は「L」レベルのままである。遊技球2 7を第一検出部5 0で検出して第二検出部5 1で検出しないときは、タイマー回路6 7で反転されAND回路6 9に入力されるので、AND回路6 9の出力は「H」となり、発振回路6 8のレベルが「L」「H」となればAND回路6 9のレベルがt 5に示すように間歇信号7 5となって出力される。つまりAND回路6 9の入力がすべてONとなったときはその出力はONとなり、AND回路6 9の入力が一個でOFFであればその出力はOFFである。したがって第二検出部5 1に遊技球2 7が無いときは球詰まりと判断して電磁石6 0を間欠励磁させて第二検出部5 1が遊技球2 7を検出するまでこの動作を繰り返す。第一検出部5 0に遊技球2 7が無いときは出力「L」でAND回路の出力も「L」レベルのままである。以上の構成による遊技機1 0は遊技球2 7が停滞していると自動的にその停滞を解除することができる。なお、間歇励磁されたときは、その信号を横表示装置2 6に通電をさせると共に図示しない音声回路にもこの信号を送って遊技客に報知することができる。以上述べた本実施例はICロジック回路構成としたが、このICロジック回路をマイクロコンピュー

タの置き換え論理演算を図7に従ってプログラムすれば同じ効果がある。このマイクロコンピュータは本遊技機1 0に多用されており図示しない遊技盤制御装置または説明を省略する遊技球の発射制御や払出装置を同一装置内で作動させる内枠制御装置にプログラムしてインターフェースに出力部を装備すればコストダウンを図ることもできる。

#### 【0022】

【発明の効果】本発明によれば、遊技機1 0をパチンコ店に設置して営業したときは、多客時である夕刻頃に上皿は汚れてくるので店員が上皿の清掃をする必要もなくなる。このことは、従来技術でも述べたように球詰まりが発生すると遊技客は当然ながら上皿を叩く、叩けば店員が注意を促す、この為、店員と遊技客とにトラブルが生じていたがこのようなことがなくなる。上皿における玉詰まりのトラブルは実際に球詰まりなのか、ただ単に入賞が悪く出玉率が低く感じて気分的に悪く叩いたもののかは店員には判断ができないので、叩けば注意を促す、と言ったこともなくなる。また球詰まりが多く発生するようになれば店員は遊技客を立ち退かせて上皿の皿部を掃除しなければならない、遊技客を立たせるとすることは遊技を無理に中断させるので気分的に悪いときは遊技自体をやめて帰ってしまうと言うことになりかねない、と共に連れだって遊技をしている場合はその連れ同士共に帰ることにもなってくる。このことが多くなってくると入りする時間帯であれば遊技店自体の売り上げに大きく影響してくると同時に、普通一般的な出玉率で営業していても遊技客は出玉率の悪いパチンコ店と錯覚を起こすようになる。この重大な事実を本発明を採用することでこれらの欠点をすべて解消され、遊技場の環境改善につながり売り上げに大きく貢献ができると共に、遊技客も楽しく遊技ができるものである。

#### 【図面の簡単な説明】

【図1】 実施例に示す遊技機本体を示す斜視図である。

【図2】 実施例の遊技機の裏側を示す斜視図である。

【図3】 実施例における発射装置の動作状況の説明図である。

【図4】 実施例の上皿の略投影4面図を示したものである。

【図5】 (a)は上皿の平面図で詳細を説明する為に示す上皿の上一部をSからS'で削除する図で(b)は(a)のx、x'の断面図で(c)はy、y'の断面図と(c)はy、y'の断面図である。

【図6】 (a)は遊技球同士より噛み合って電磁石の非通電状態の平面図で(b)はその噛み合った状態でT、T'破断線の断面図である。

【図7】 実施例の電気的動作を示すブロック図と作動チャート図である。

【図8】 従来の上皿を上から見たもので上皿飾を矢印

11

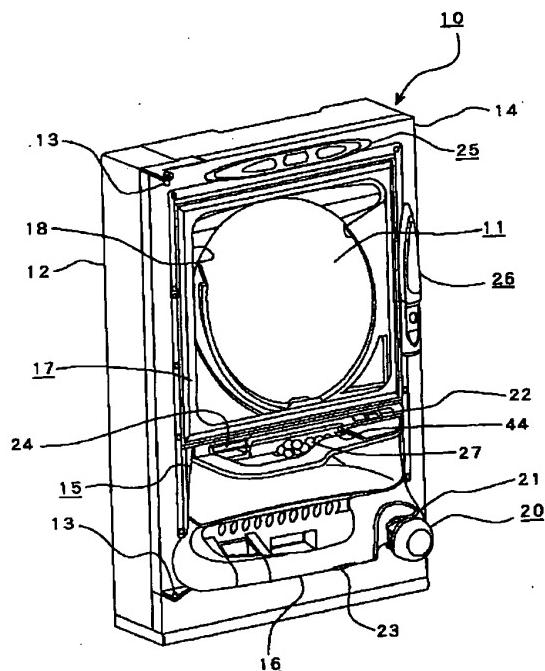
Sから左側を切除した図である。

## 【符号の説明】

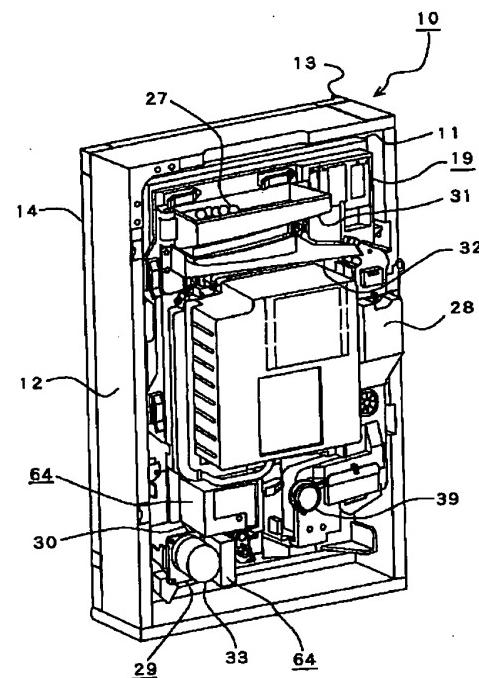
10…遊技機、11…遊技盤、12…外枠、13…ヒンジ、14…内枠、15…上皿、16…下皿、17…金枠、18…誘導レール、19…機構盤、20…発射ハンドル、21…発射調節レバー、22…上球抜レバー、23…下球抜レバー、24…満杯表示、25…上表示装置、26…横表示装置、27…遊技球、27A…遊技球、27C…遊技球、28…賞球払出装置、29…発射装置、30…発射槌、31…球タンク、32…槌、33…発射モータ、34…送球装置、35…発射点、36…発射カム、37…ハンドル小物、38…送球レバー、39…アヒル、40…送軸、41…レバー軸、42…発射\*

\* 軸、43…ローラーアーム、44…導入口、45…発射レール、46…賞品球通路、47…供給口、48…皿部、49…球抜出口、50…第一検出部、51…第二検出部、52…上流側、53…下流側、54…供給部、55…球抜通路、56…第一検出信号、57…第二検出信号、58…第二遅延信号、59…発振信号、60…電磁石、61…立直部、62…湾曲部、63…発射ベース、64…制御装置、65…発射制御装置、66…タッチ制御信号、67…タイマー回路、68…発振器、69…AND回路、70…電源制御回路、72…タッチ信号、73…電源制御信号、74…回路電源ライン、75…間歇信号。

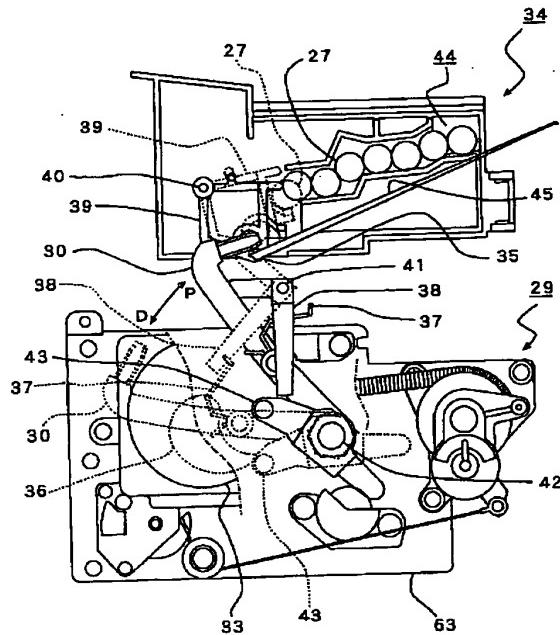
【図1】



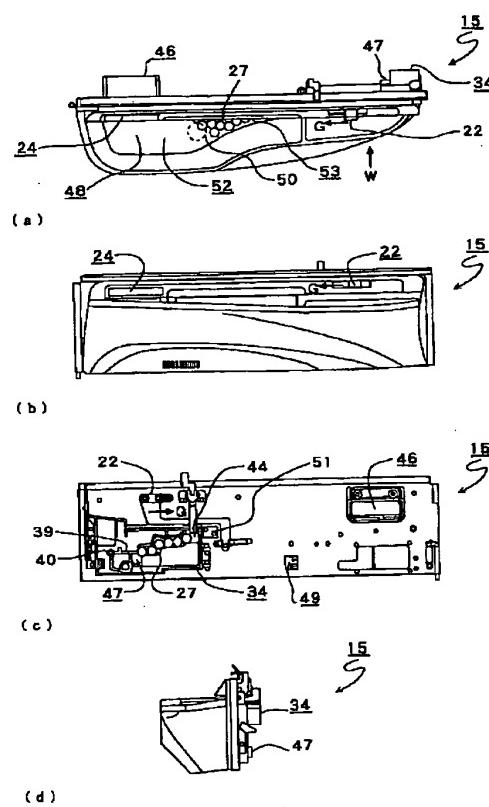
【図2】



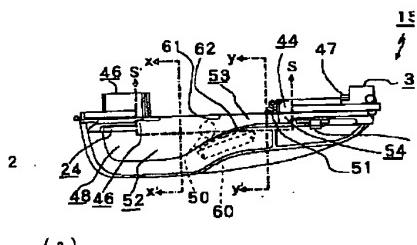
【図3】



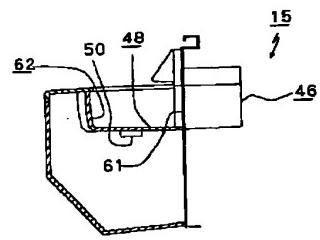
【図4】



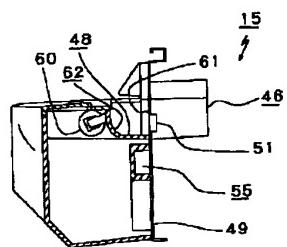
【図5】



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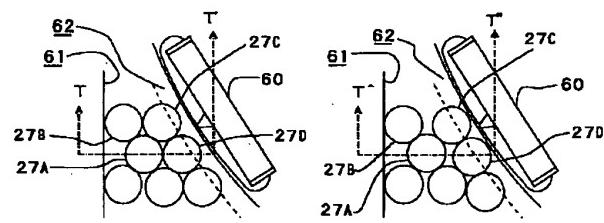


(b)

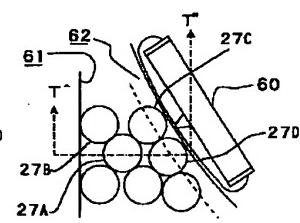


(c)

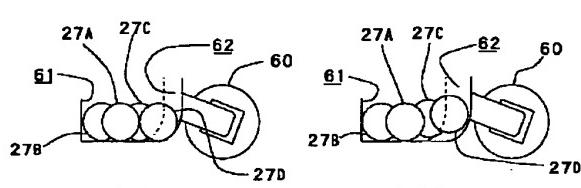
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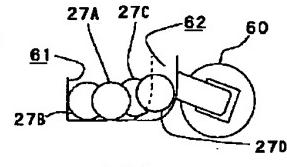
(a)



(a')

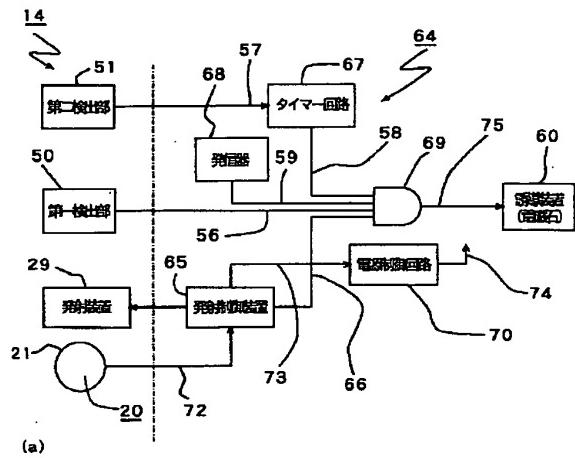


(b)

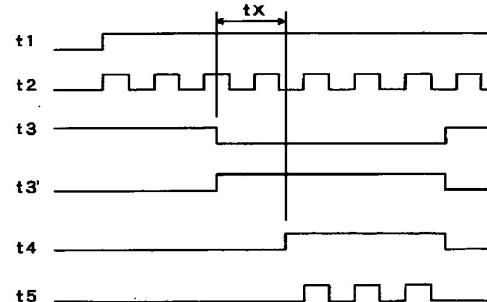


(b')

【図7】

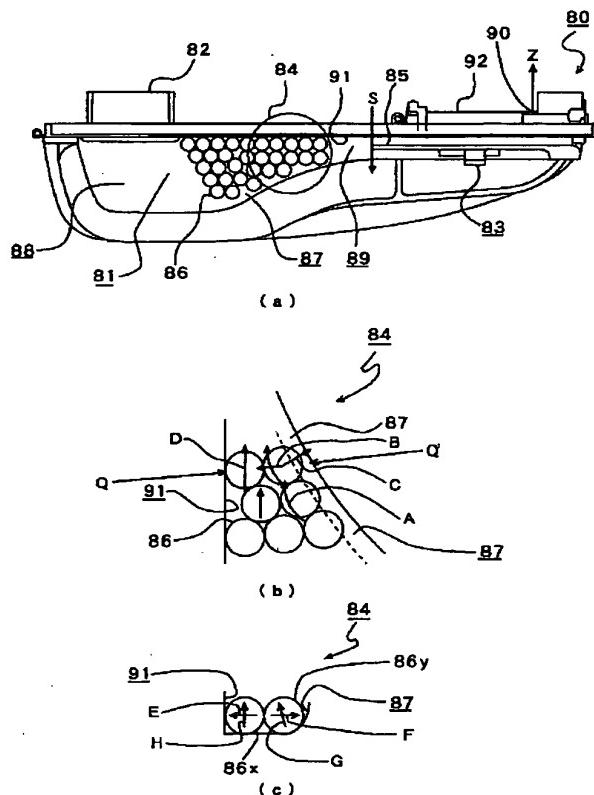


(a)



(b)

【図8】




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フロントページの続き

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**Bibliography**

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**Summary**

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(57) [Abstract]

[Technical problem] If sphere plugging of an upper pan occurs in a game, offer the equipment which performs an automatic removal, without giving blow vibration.

[Means for Solution] The second game sphere detecting element is prepared at the first game sphere detecting element and a downstream at an upstream, respectively, and the guide further constituted from an electromagnet by the bend of a tray is prepared in the interior of the background of the tray of an upper pan. When a game sphere is generated by sphere stop in an upper pan in a game, the game sphere which carried out intermittent energization and carried out the sphere stop to the electromagnet after fixed time is poured to a downstream. Although the game sphere is detected by the first game sphere detecting element, when the second game sphere detecting element does not detect a game sphere, solution is obtained by pulling up the game sphere with which the tray which especially concludes that it geared with game balls, and gears curved and which narrows down, installs an electromagnet in a portion and is in a bend. Since become without a game visitor striking an upper pan when a sphere stop occurs by this, and don't strike to a salesclerk does not need to be said, a game visitor can be devoted to a game.

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## CLAIMS

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[Claim(s)]

[Claim 1] The upper pan of the game machine which is the upper pan attached in the main part of a game machine possible [ opening and closing ], and was characterized by equipping this upper pan with the first game sphere detecting element, the second aforementioned game sphere detecting element, and guide of a game sphere.

[Claim 2] It is the upper pan of the game machine characterized by judging it as ball plugging and the aforementioned guide making a game sphere guide when the aforementioned first game sphere detecting element detects the aforementioned game sphere and the aforementioned second game sphere detecting element does not detect a game sphere in the upper pan of a game machine according to claim 1.

[Claim 3] It is the upper pan of the game machine characterized by operating the aforementioned guide after the time when the operation of the aforementioned guide is specified in the upper pan of a game machine according to claim 1 or 2.

[Claim 4] The operation of the aforementioned guide is the upper pan of the game machine characterized by making an operation possible only while the launcher is operating in the upper pan of which a game machine given in three from a claim 1.

[Claim 5] It is the upper pan of the game machine which is made to indicate by visible with voice information when the aforementioned guide operates in the upper pan of which a game machine given in four from a claim 1, or is characterized by what is voice-reported or visible displayed.

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## DETAILED DESCRIPTION

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**[Detailed Description of the Invention]****[0001]**

[The technical field to which invention belongs] this invention relates to the upper pan attached in the front face of the game machine which uses game spheres, such as a pachinko machine, an arrangement ball, and a mahjong ball.

**[0002]**

[Description of the Prior Art] The upper pan of a game machine is an upper pan which borrows with a ball rental machine or \*\*\*\* equipment with the card into which the game sphere was converted by predetermined money or predetermined money before the game start, and performs a game conventionally, and this upper pan is the structure which flows into the ball feeder attached in the interior of an upper pan, being narrowed down on a taper toward a downstream from the upstream of an upper pan, and aligning a game sphere in one train. If the discharge handle is prepared in the front lower-right section of a game machine, it attaches, the pin which operates the switch of discharge regulation and a discharge start is put side by side for the discharge handle free [ rotation of a \*\*\*\* lever ] and rotation operation is clockwise carried out in the discharge regulation lever, a game sphere will operate a ball feeder with a launcher, and will be sent out to a discharging point from a ball feeder, and the game sphere it is to a discharging point will be hit by the Along with a guidance rail, the fly of the hit game sphere is carried out to the game face of a board, and the game sphere which carried out the fly sometimes wins a prize of the winning-a-prize equipment formed in the game face of a board. When a prize is won, it is composition operation said that the game sphere which paid out the game sphere which is a prize sphere to the upper pan, and was paid out with prize sphere expenditure equipment flows into a discharging point again.

[0003] Thus, whenever a game sphere repeats this discharge operation, while it flows from the upstream of an upper pan to a downstream, since the flow hand of cut with a mutual game sphere is complicated to some upper pans always moved and narrowed down to the discharging point, as for a game sphere, ball plugging occurs in it. Although this often polishing a game sphere and cleaning of an upper pan are performed continuously, dirt adheres immediately and a game sphere is sometimes got blocked. Although the game visitor in a game struck the upper pan and was canceling plugging of a game sphere when getting the game sphere blocked, when the upper pan had also crocodiled and broken from the screw stop portion by giving a sometimes strong shock for a while and there was no upper pan for exchange, an order was given to the manufacture maker of this game machine, and it was made unavoidable as an unused base until the upper pan arrived.

**[0004]**

[Problem(s) to be Solved by the Invention] The fault said that a game sphere bites

in the portion of narrowing down as mentioned above is not yet solved. The state detailed explanation which a pan besides bites explains by drawing 8 (a), (b), and (c). Drawing 8 (a) is drawing which can set to the upper pan 80 attached in the game machine which does not illustrate the conventional detail, looked at the upper pan from the top, and excised left-hand side for upper \*\*\*\* 85 from Arrow S. There is a tray 81, and discharge will be started by the upper pan 80 if the discharge lever which does not throw in and illustrate the game sphere 86 to the tray 81 is operated. If the game sphere 86 is discharged, it will be transmitted to the guidance rail prepared in the game board (the game board and its relation are omitted), and a himself will be devoted in the center of game \*\*\*\*. If the driven-in game sphere 86 is formed in the game board and wins a prize of a \*\*\*\* winning-a-prize implement, the game sphere 86 will pay out it to the upstream 88 of a tray 81 through the prize sphere path 82 as a prize sphere. To the upper pan 80, if the \*\*\*\* lever 83 is formed and it moves to left-hand side (detailed ellipsis), since the inclination is prepared, the game sphere 86 in the upper pan 80 can flow to the lower pan which is not illustrated in the upstream 88 direction one by one from a downstream 89, and can sample the game sphere 86. The game sphere 86 which paid out the game sphere 86 to the upper pan 80 as an injection or a prize sphere is supplied to the discharging point which the sphere feeder 92 (a detail is omitted) operates and is not illustrated from the feed hopper 90 of the sphere feeder 92 to an arrow Z direction by discharge operation.

[0005] Here, to the direction of arrow D, although turning effort is working in the direction of Arrow D when meeting the reorganization section 91 and flowing, as the game sphere 86 is shown in drawing 8 (b), when moving to a downstream 89 from an upstream 88, since [ this ] the hand of cut of the game sphere 86 is the direction of A, each axes of rotation differ and the adjoining game sphere 86 applies brakes of each other. On the other hand, the turning-effort relation of the game sphere 86 of a place which met the bend 87 when it saw from a bend 87 is a direction like the arrow of A, B, and C. A result which a complicated power relationship occurs mutually with the game sphere 86 in the reorganization section 91, surface of revolution contacts to the game sphere 86 which adjoins, respectively, and the brake works, stops moving even if each game sphere 86 tends to rotate in the right direction, laps with the above-mentioned situation, that is, is called sphere plugging is brought. If drawing 8 (c) explains in more detail, drawing 8 (c) first shows the state where \*\*\*\*\* 84 was seen from the upstream 88 with the cross section of the direction Q of the drawing 8 (b) arrow, and Q'. The force is committing ball plugging, respectively in the direction of arrow E of game sphere 86x, and the direction of arrow F of game sphere 86y. Game sphere 86x tend to roll along the direction 91 of arrow H, i.e., the reorganization section. On the other hand, the force which it is pushed on a bend 87 and rolled in the direction of arrow G is committing game sphere 86y.

[0006] Since it will be in the state of \*\*\*\*\*ing since the rolling direction of

game sphere 86y progresses seen from drawing so that it may push into game sphere 86x, it becomes impossible to move neither of game spheres 86x and 86y. although the method which the above can consider various these cures against ball plugging by the ball plugging phenomenon, and is described below is mentioned -- not a little -- \*\* -- it has the fault The method of vibration being given to the game sphere 86 by the structure top, the ceramic vibrator, etc. also under the above situations, and canceling ball plugging is also considered. However, it is difficult to break down using [ this ceramic vibrator ]-in latus operation of low frequency (several HZ) and wave-like interval ball plugging. When vibration of high frequency is given, there is a fault said that game sphere 86x and game sphere 86y bites too many. Moreover, by this impulsive vibration source referred to as striking, although the method of canceling sphere plugging of striking a part of tray 81 by the solenoid etc. is also considered, if it is made a game visitor, there will be a possibility that it may be hurt and it will not have adopted preferably by this method. If sphere plugging occurs and a game visitor strikes an upper pan, though natural, in order that [ this ] a salesclerk might urge cautions, the trouble had arisen to the salesclerk and the game visitor. Since the salesclerk who is not on that occasion cannot do whether this trouble is what winning a prize is bad, and the rate of reward balls merely only sensed it low whether it was actually sphere plugging, and was struck bad according to the mood of the moment as for judgment, such a trouble also occurs. Moreover, it may be said that the game itself will be stopped when bad according to the mood of the moment, and it will return since saying that it makes the game visitor which a salesclerk has to evict a game visitor if sphere plugging comes to occur mostly, and must clean the tray 81 of the upper pan 80 stand interrupts a game by force. Even if it does business at the usually general rate of reward balls at the same time it will influence the sales of the game store itself greatly, if it is the time zone which carries out a full house when this increases, a game visitor comes to cause a pachinko parlor and an illusion with the bad rate of reward balls.

[0007]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, as shown in a claim 1, it is the upper pan attached in the main part of a game machine possible [ opening and closing ], and it is the structure equipped with the guide to which prepare the first game sphere detecting element and the second aforementioned game sphere detecting element which detect a game sphere in the upper pan, and a game sphere is made to guide. Next, as shown in a claim 2, when the second game sphere detecting element by which the first game sphere detecting element prepared in the upstream of an upper pan detected the game sphere, and was prepared in the downstream did not detect a game sphere, it is judged as that to which the game sphere has stagnated, a guide operates, and it was made to make a game sphere guide. The first game sphere detecting element prepared in the upper section of an upper pan as shown in a claim 3 as the above-mentioned guidance

method detects a game sphere, and when the second game sphere detecting element prepared in the downstream does not detect a game sphere, it is made to operate a guide after the set-up time. When a game visitor did not play a game, as shown in a claim 4, it was not made to carry out the operation of this guide. Next, as shown in a claim 5, when a guide operated, as audio utterance and an audio display were performed simultaneously, only voice reported them or it was made to display with chisels, such as a lamp, the information means against a game visitor was established.

[0008]

[Embodiments of the Invention] The first game sphere detecting element is prepared in the upstream of an upper pan, the second game sphere detecting element is prepared also in a downstream, and when the second game sphere detecting element prepared in a downstream when a game sphere is detected by the first game sphere detecting element does not detect a game sphere, judgment of the game sphere paid out as an injection of a game sphere or a prize sphere is possible with sphere plugging. Since the place got blocked when a game sphere bit from this and the portion of narrowing [ which is the place which is easy biting ] down was moved collapses, solution is possible by preparing the guide for moving this portion. Since judgment of it will be possible for it with sphere plugging if such a phenomenon is in it from the same contents of detection even if the time for discharge some passes in it, since it generates continuously, although [ which it may also have momentarily that the first detecting element has detected the game sphere depending on the case, and the second detecting element does not detect a game sphere ] it is not even if it gets it blocked, it can also solve this by preparing time difference to it. Since the seven-piece game sphere of grade is usually held at pitching equipment, before completing discharge of this game sphere for seven pieces, it is made for this time setup just to merely operate a guide. That is, since discharge speed is discharge of 100 spheres in 1 minute, after detecting, it is desirable to operate a guide after about 4 seconds.

[0009] Since it will on the contrary be easy to start sphere plugging about installation of the first game sphere detecting element and the second game sphere detecting element if a level difference is made to an upper pan, it can do in application of a metal detection system from the tray base of an upper pan. Moreover, sphere plugging can be judged when the state where the pressure according [ the second detecting element of the downstream of an upper pan ] to a game sphere was lost occurs. That is, it can constitute from application of a pressure sensor. In this case, the consideration which cannot do a level difference by the pressure sensor is also required. Since discharge operation is not carried out when a game visitor does not play a game, since the need is lost, the operation of the first game sphere detecting element, the second game sphere detecting element, and a guide turns OFF each power supply. Thereby, power-saving is possible. If power supplies other than illuminations, such as an unused display, are also turned

OFF at this time, it is still much more good.

[0010] If information expression is carried out neither with voice nor a lamp when operating a guide, the game visitor currently absorbed in the game will be surprised in the operation. In this case, since a game visitor mistakes and makes it confused on the contrary, if the expression used as the advantageous situation for game visitors, such as winning a prize and \*\*\*\*\* is a lamp, it makes speed of blink slow or its expression of soft sensibility like vibraphone sound is desirable. Although the method prepares a certain filament convex [ specific ] or concave in the downstream other than the above from an upstream, and the flow configuration of a game sphere is made to be regularly located in a line with an upper pan is also good, since the configuration where the game sphere was located in a line when the interval of a filament was located in a line by the smallest unit in this case becomes n.5 pieces from the base to a vertex with a triangle, n.25 of a game diameter of sphere or the interval for n.75 pieces The game sphere by which general use is carried out although the game sphere of this should just be the perfect center of a circle is that the stamp's being given to the front face of a game sphere and the spherical surface are not perfect \*\*\*\*, and since the game machine which uses a game sphere is using abundantly the guide which prepared narrowing down, it becomes \*\*\*\*\*, and it is got blocked with the portion, and serves as a phenomenon.

[0011] As for the guide which operates electrically, it is common to make it operate by the microcomputer which is application of electronic equipment, IC logic, etc. The microcomputer and IC logic which static electricity tends to occur [ logic ] and operate electrically a game sphere, the game machine which consists of plastics with a game visitor's electronic mischief etc. may cause an overrun phenomenon, or may cause unusual phenomena, such as a hang-up. As for this unusual phenomenon, it is desirable for permanent energization to be performed to a guide, and to say that it damages by fire by the rise of internal temperature, to incorporate a cure, such as to perform specific initial setting continuously by to enable it to intercept a power supply with temperature, such as a thermostat and bimetal, and hard interruption, in a guide that this unusual phenomenon seems to be, and to make it correspond to this unusual phenomenon, unless it shuts off a power supply or resets.

[0012] this invention cannot be overemphasized by that it is possible for it to be widely applicable over a guide, ON \*\*\*\*\*, etc. which it came to narrow down at the path of not only an upper pan but a game sphere as mentioned above. Next, in order to clarify composition of this invention further, a suitable example will be explained with a drawing. In addition, the form of operation of this invention is not limited to the following example at all, and as long as it belongs to the technical range, this invention can be used for it with various forms.

[0013]

[Example] drawing 1 is the perspective diagram showing the main part of a game machine which adopted the game machine installation \*\*\*\* top pan of this invention

The game machine 10 of this example was installed in the game machine installation island which omits drawing, has equipped the outer frame 12 killed and fixed with a nail etc., and the hinge 13 is formed in the right outside of the outer frame 12 up and down. The up-and-down hinge 13 is used as a pivot at an outer frame 12, a seating rim 14 is inserted in possible [ opening and closing ], and the game board 11 which has arranged various winning-a-prize mouths, an obstacle nail, etc. which are not illustrated, and laid the guidance rail 18 is attached in the seating rim 14 removable. A metal flask 17 is attached in the center of abbreviation, and inside the metal flask 17, the glass holder which does not illustrate a detail uses left-hand side of a metal flask 17 as a pivot, and is attached possible [ opening and closing ] at the seating rim 14. While the upper pan 15, the lower pan 16, and the discharge handle 20 are attached, the discharge regulation lever 21 is attached in the lower part of a seating rim 14 possible [ rotation ] at the periphery of the discharge handle 20. The discharge operation switch which does not illustrate the detail it was made to be interlocked with the discharge regulation lever 21 is formed in the interior of the discharge handle 20, if the discharge regulation lever 21 is turned clockwise, it will be set to being turned on in a discharge operation switch, and discharge will be started. Since strength adjustment of the discharge force of the game sphere 27 can also do the discharge regulation lever 21, if it turns clockwise further, the discharge force can strengthen.

[0014] If the game sphere 27 is discharged to the game board 11, the game sphere 27 will win occasionally a prize of a winning-a-prize mouth. If winning a prize continues mostly, there will be many game spheres 27 and the game sphere 27 will pay out the upper pan 15 as a prize sphere. Furthermore, if winning a prize continues, the full detection switch which the lower pan 16 fills and is not illustrated will work, and the game sphere 27 will stop discharge of the game sphere 27, if it is full of the lower pan 16 and also overflow continues. Since the full display 24 for the situation being shown is formed when discharge stops, this display is also performed, and a game visitor can know why a halt of discharge was performed by forming this full display 24. If the lower \*\*\*\* lever 23 is attached to the lower pan 16 and this lower \*\*\*\* lever 23 is moved to the right, the game sphere 27 held to the lower pan 16 can be sampled. If the great success which the horizontal display 26 is formed in the upper display 25 and right-hand side at the upper part of a seating rim 14, respectively, is attached to the contents of the game in a game, and omits a detail occurs, each can make the lamp in the interior able to blink or turn on, and can report the situation to a game visitor.

[0015] Drawing 2 is the perspective diagram showing the background of the game machine 10 which adopted the upper pan 15 of this invention. The mechanism board 19 for fixing the game board 11 by the seating rim 14 is formed in the background of the game board 11, and if this mechanism board 19 is removed, the game board 11 can be taken out. The upper part of the mechanism board 19 is equipped with the sphere tank 31, the game sphere 27 is held inside, and it connects with awarded-

balls expenditure equipment 28 by \*\* 32 following a degree. Therefore, if the game sphere 27 wins a prize of the winning-a-prize implement which is not illustrated to the table of the game board 11, awarded-balls expenditure equipment 28 operates, as a prize sphere, the game sphere 27 will pay out the upper pan 15, and, next, the game sphere 27 will be supplemented with the game sphere 27 by awarded-balls expenditure equipment 28 through the tank rail 32 and \*\* 32 from the sphere tank 31. The launcher 29 which attached the discharge hammer 30 is located under the mechanism board 19, and is attached in seating-rim 14 rear face. If the discharge regulation lever 21 is clockwise turned as the discharge control unit 65 is formed and being mentioned above, the discharge control unit 65 will operate in a launcher 29, and discharge of the game sphere 27 will be made to it. The control unit 64 which operates the awarded-balls expenditure equipment 28 which mentions a detail later is formed in the mechanism board 19.

[0016] Drawing 3 explains the situation of a launcher 29 of operation. Drawing 3 is drawing showing each cooperation operation with the launcher 29 shown in the pitching equipment 34 attached in the upper pan 15 which is drawing showing supply of the game sphere 27, and the pattern of discharge, and is shown in drawing 4 (c), and drawing 2 . The discharge hammer 30 for carrying out a hit ball has fixed the game sphere 27 on the discharge shaft 42 prepared in the discharge base 63. The discharge motor 33 is attached in the discharge base 63 by the stay which does not illustrate a detail, and the discharge cam 36 is attached in the shaft of the discharge motor 33. When it is in a position which the roller arm 43 is attached in the discharge hammer 30, and is transmitted to the periphery of the discharge cam 36 and the discharge motor 33 rotates clockwise, the roller arm 43 is transmitted to the discharge cam 36, and the discharge hammer 30 is made to rock. The handle accessories 37 have fixed to the discharge hammer 30, and whenever the discharge hammer 30 rocks the pitching lever 38 inserted in the lever shaft 41 drilled by pitching equipment 34, it is rocked with both the handle accessories 37. A feed shaft 40 is drilled by pitching equipment 34, and the duck 39 is inserted in the feed shaft 40. This duck 39 can use a feed shaft 40 as a pivot by the end of the pitching lever 38, and can rock it up and down. If a duck 39 becomes the position shown by the dotted line, the game sphere 27 will be made by things 1 \*\*\*\*\* in the interior, and the game sphere 27 of one sphere added when it became the position shown as a solid line can be put on the discharging point 35 of the discharge rail 45. Therefore, if the discharge motor 33 operates, this discharge hammer 30 will carry out the hit ball of the game sphere 27 which rocks in Arrow D and the direction of P, and is in the discharging point 35. If it becomes the position of P arrows of the discharge hammer 30, pitching equipment 34 will also operate and the game sphere 27 will be sent out to the discharging point 35. Since it is energized with the length spring which is not illustrated the next moment, the game sphere 27 can be discharged. The following game sphere 27 is supplied from an inlet 44, and since the inlet 44 is open for free passage to the tray 48 shown in drawing 4 of the upper pan 15, it

sends out the game sphere 27 held by the tray 48 one by one to pitching equipment 34 after discharging the game sphere 27. Next, the above-mentioned tray 48 explains a detail by drawing 4.

[0017] Drawing 4 shows the 4th page view of abbreviation projection with the upper pan 15 of this invention article. Drawing 4 (a) is a plan, when the prize sphere path 46 is established in rear view and the upper pan 15 whose (d) is a right lateral view and front view and (c) win a prize of them, a prize sphere pays out (b), and the game sphere 27 which is a prize sphere is drawn by the upstream 52 of a tray 48 from this. The game sphere 27 which paid out the tray 48 of the upper pan 15 to the upstream 52 since the tilt angle was prepared flows to the feed zone 54 of a downstream 53. It has prepared, as the first detecting element 50 shows at (a) the upper pan 15, and as the second detecting element 51 shows (c), it has prepared. As shown in (c), pitching equipment is formed in the tooth back of the upper pan 15, and the inlet 44 is connected to the downstream 53 of a tray 48. Therefore, the game sphere 27 in a tray 48 is introduced into pitching equipment 34 through an inlet 44 from a feed zone 54, and is supplied by the operation of a duck 39 discharging point 35 from a feed hopper 47. Since the upper \*\*\*\* lever 22 is formed in the upper pan 15 and it has energized in the arrow anti-G directions, if it moves in the direction of arrow G and makes, it will return to the original position automatically. As the upper \*\*\*\* lever 22 is shown in (c) (a detail is omitted), the game sphere 27 of the upper pan 15 is discharged by the lower pan 16 from the sphere extraction mouth 49 through the \*\*\*\* path 55 shown in drawing 5 prepared near the feed hopper 47 which is not illustrated by interlocking movement in the direction of arrow G.

[0018] Next, drawing 5 (a), (b), and (c) explain the detail of the first detecting element 50 which is the sensor of this invention, and the second detecting element 51. Drawing 5 (a) is drawing which deleted the part from S by S' on the upper pan 15 shown in order for the plan of the upper pan 15 to explain a detail. (c) of drawing 5 (b) is the cross section of y and y' with the cross section of x of (a), and x'. The first detecting element 50 is installed in the upstream 52 of the upper pan 15, and the second detecting element 51 is formed in the downstream 53. There is the reorganization section 61 in the upper pan 15, it is considering as the main part skeleton composition of the upper pan 15 by metal, and the tray 48 is being fixed to the reorganization section 61. The electromagnet 60 which is a guide is formed in the interior of the upper pan 15, and the electromagnet 60 is attached in the bend 62 of a tray 48. The first detecting element 50 is formed in the base of a tray 48, and the second detecting element 51 is formed in the reorganization section 61. Each detecting element of this example already oscillated by the well-known oscillation coil, and the magnetic metal or the method said that an oscillation will stop if it approaches is used for it. In addition, there is a magnetic-substance detection sensor adapting magnets, such as what combined the reed switch and the magnet, and a thing which combined the hall device and the magnet, etc., and if attached to these detection sensors, since it is well-known, a detail is omitted in

this example.

[0019] Next, drawing 6 describes in detail how the biting game sphere 27 which is the technical problem of this invention is broken down. (a) of drawing 6 gears with the game balls 27A, 27B, 27C, and 27D, and is a plan in the state of an electromagnet 60 where it does not energize, and (b) is the cross section of T and T' break line in the state where it geared. As energization of an electromagnet 60 shows to (a'), rearrangement is performed so that the game sphere 27 may be magnetically connected with the reorganization section 61 and an electromagnet 60, and the game spheres 27A, 27B, 27C, and 27D which got into gear by the tray 48 can draw near game sphere 27C and the game sphere 27 above a bend 62 with an electromagnet 60, if it sees in the cross section (b') of break-line T' and T." Therefore, since the game spheres 27A, 27B, 27C, and 27D become a different configuration from the state where it geared, if energization is intercepted, they can bring a result stood in a line and changed, and can make a downstream 53 flow smoothly.

[0020] Next, the electronic circuitry of the control unit 64 which adopted electric operation of this equipment as this equipment although drawing 7 explained is common, omits a detail, and explains the operation for the portion of this equipment based on a block diagram. About drawing 7 (a), dashed line left-hand side is included in the seating rim 14. Dashed line right-hand side is a control unit 64, and VCO 68, the timer circuit 67, the power control circuit 70, and AND circuit 69 are formed in the control unit 64. The electromagnet 60 which is a guide is installed in the upper pan 15. The power control circuit 70 supplies power through the circuit power supply line 74 to each block. The second delay signal 58 from the second detecting element 51 is inputted into AND circuit 69 through the touch control signal 66, the first detecting signal 56 from the first detecting element 50, and timer circuit 67 from the discharge control unit 65. The power control signal 73 from the discharge control unit 65 is controlling the power control circuit 70. If discharge is started with the discharge regulation lever 21 prepared in the discharge handle 20, the touch signal 72 will occur, and a launcher 29 will be made to drive through the discharge control unit 65, and the discharge control unit 65 will also generate the touch control signal 66 simultaneously. The discharge control unit 65 also controls the power control circuit 70, and if the touch signal 72 is inputted, supply of power will also be started to each block.

[0021] Drawing 7 (b) t1 is the oscillation signal 59 which is an oscillation output. t2 is the touch control signal 66 when there is a touch input. t3 reverses the first detecting signal 56 from the first detecting element 50 by the timer circuit 67, the second delay signal 58 used as t3' is shown, and t3 "H" level is a time of having not detected the game sphere 27. t4 is an output situation when ball plugging of AND circuit 69 occurs. 66 becomes the touch control signal t1 by the start of discharge, and it is inputted into AND circuit 69, and if the game sphere 27 is in the upper pan 15, the first detecting element 50 will be inputted into AND circuit 69 on "H" level

which is not illustrated. If the game sphere 27 is detected as the second detecting signal 57 in Z points by the second detecting element 51, t3' will be reversed by the timer circuit 67, and it will be set to t4 as the second delay signal 58, and will be inputted into AND circuit 69. 68 emitted the shown signal and has sent it out to VCOt1 to AND circuit 69 as an oscillation signal 59. When the output of AND circuit 69 is connected to the electromagnet 60 which is a guide and all the inputs of AND circuit 69 are set to "H" level, the output turns ON an electromagnet 60 on "H" level. Time for tX for the seven maximum numbers of the discharge number of the game sphere 27 to show time operation of a timer circuit 67 is prepared, and, as for the amplitude t2 of VCO 68, the amplitude time for two discharge number abbreviation for the game sphere 27 is prepared. When t1 and t2 are "H" level, respectively, it is the situation which the first detecting signal 56 is "H", and there will be no ball plugging and will have been discharged to usual if t4 is set to "L" level, and since not all the inputs to AND circuit 69 are "H" level, the output of AND circuit 69 is still "L" level. Since it is reversed by the timer circuit 67 and is inputted into AND circuit 69 when detecting the game sphere 27 by the first detecting element 50 and not detecting by the second detecting element 51, it will become the intermittent signal 75 and the output of AND circuit 69 will be outputted, as the level of AND circuit 69 shows t5, if it is set to "H" and the level of an oscillator circuit 68 is set to "L" and "H." That is, when all the inputs of AND circuit 69 are set to being turned on, the output is set to being turned on, and the output is OFF if the input of AND circuit 69 is OFF in a piece. Therefore, when there is no game sphere 27 in the second detecting element 51, this operation is repeated until it judges it as sphere plugging, it carries out intermittent excitation of the electromagnet 60 and the second detecting element 51 detects the game sphere 27. When there is no game sphere 27 in the first detecting element 50, the output of an AND circuit is also still "L" level with an output "L." The game machine 10 by the above composition can cancel the stagnation automatically, if the game sphere 27 has stagnated. In addition, when intermittent excitation is carried out, this signal can be sent also to the voice circuit which does not illustrate the signal while making the horizontal display 26 energize, and it can report to a game visitor. Although this example described above considered as IC logical-circuit composition, if the replacement logical operation of a microcomputer is programmed for this IC logical circuit according to drawing 7, there is the same effect. A cost cut can also be aimed at, if it programs to the seating-rim control unit which operates discharge control of the game sphere which omits the game board control unit or explanation which this microcomputer is used abundantly at this game machine 10, and is not illustrated, and expenditure equipment within the same equipment and an interface is equipped with the output section.

[0022]

[Effect of the Invention] Since according to this invention an upper pan becomes dirty at the evening time which it is at the multi-visitor time when the game machine

10 is installed in a pachinko parlor and business is done, it becomes unnecessary for a salesclerk to clean an upper pan. If sphere plugging generates this as the conventional technology also described, a game visitor will lose such thing, although the trouble had arisen to the salesclerk and the game visitor in order that [ that strikes an upper pan / this ] a salesclerk might urge cautions, if it struck, though it was natural. It becomes without saying that cautions will be urged to whether the trouble of ball plugging in an upper pan is what winning a prize is bad, and the rate of reward balls merely only sensed it low whether it was actually sphere plugging, and was struck bad according to the mood of the moment if it strikes since a salesclerk cannot do judgment. Moreover, the companions also become return, when bad [ according to the mood of the moment ] and saying that it makes the game visitor who a salesclerk has to evict a game visitor and has to clean the tray of an upper pan stand is playing the game also in both companions for the game itself to be referred to as stopped and returning, since a game is interrupted by force, if sphere plugging comes to occur mostly. Even if it does business at the usually general rate of reward balls at the same time it will influence the sales of the game store itself greatly, if it is the time zone which carries out a full house when this increases, a game visitor comes to cause a pachinko parlor and an illusion with the bad rate of reward balls. While all of these faults are canceled by adopting this invention for this serious fact, leading to an environmental improvement of an amusement center and being able to do a contribution for sales greatly, a game visitor also gets a game happily.

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[Translation done.]

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] It is the perspective diagram showing the main part of a game machine shown in an example.

[Drawing 2] It is the perspective diagram showing the background of the game

machine of an example.

[Drawing 3] It is explanatory drawing of the situation of the launcher in an example of operation.

[Drawing 4] The 4th page view of abbreviation projection of the upper pan of an example is shown.

[Drawing 5] the upper pan shown in order that (a) may explain a detail with the plan of an upper pan -- the upper -- (b) is [ the cross section of y and y' and (c) of (c) ] the cross sections of y and y' with the cross section of x of (a), and x' in drawing which deletes a part from S by S'

[Drawing 6] (a) gears from game spheres and (b) is the cross section of T and T' break line in the state where it geared, in the plan in the state of an electromagnet where it does not energize.

[Drawing 7] It is the block diagram and operation chart view showing electric operation of an example.

[Drawing 8] It is drawing which is what looked at the conventional upper pan from the top, and excised left-hand side for upper \*\*\*\* from Arrow S.

#### [Description of Notations]

10 [ -- An outer frame, 13 / -- A hinge, 14 / -- Seating rim, ] -- A game machine,  
11 -- The game board, 12 15 [ -- A metal flask, 18 / -- A guidance rail, 19 / --  
Mechanism board, ] -- A top pan, 16 -- A bottom pan, 17 20 [ -- Top \*\*\*\* lever, ]  
-- A discharge handle, 21 -- A discharge regulation lever, 22 23 [ -- Top display, 26  
/ -- Horizontal display, ] -- A bottom \*\*\*\* lever, 24 -- A full display, 25 27 [ -- A  
game sphere, 28 / -- Awarded-balls expenditure equipment, ] -- A game sphere,  
27A -- A game sphere, 27C 29 [ -- A sphere tank, 32 / -- \*, 33 / -- Discharge  
motor, ] -- A launcher, 30 -- A discharge hammer, 31 34 [ -- A discharge cam, 37 /  
-- Handle accessories, ] -- Pitching equipment, 35 -- A discharging point, 36 38 [ --  
- A feed shaft, 41 / -- A lever shaft, 42 / -- Discharge shaft, ] -- A pitching lever,  
39 -- A duck, 40 43 [ -- A discharge rail, 46 / -- Prize sphere path, ] -- A roller  
arm, 44 -- An inlet, 45 47 [ -- A sphere extraction mouth 50 / -- The first  
detecting element, 51 / -- The second detecting element, ] -- A feed hopper, 48 --  
A tray, 49 52 [ -- A feed zone, 55 / -- A \*\*\*\* path, 56 / -- The first detecting  
signal, ] -- An upstream, 53 -- A downstream, 54 57 [ -- An oscillation signal, 60 /  
-- Electromagnet, ] -- The second detecting signal, 58 -- The second delay signal,  
59 61 [ -- The discharge base, 64 / -- Control unit, ] -- The reorganization section,  
62 -- A bend, 63 65 [ -- A timer circuit, 68 / -- VCO, 69 / -- An AND circuit, 70 /  
-- A power control circuit, 72 / -- A touch signal, 73 / -- A power control signal,  
74 / -- A circuit power supply line, 75 / -- Intermittent signal. ] -- A discharge  
control unit, 66 -- A touch control signal, 67

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[Translation done.]

**\* NOTICES \***

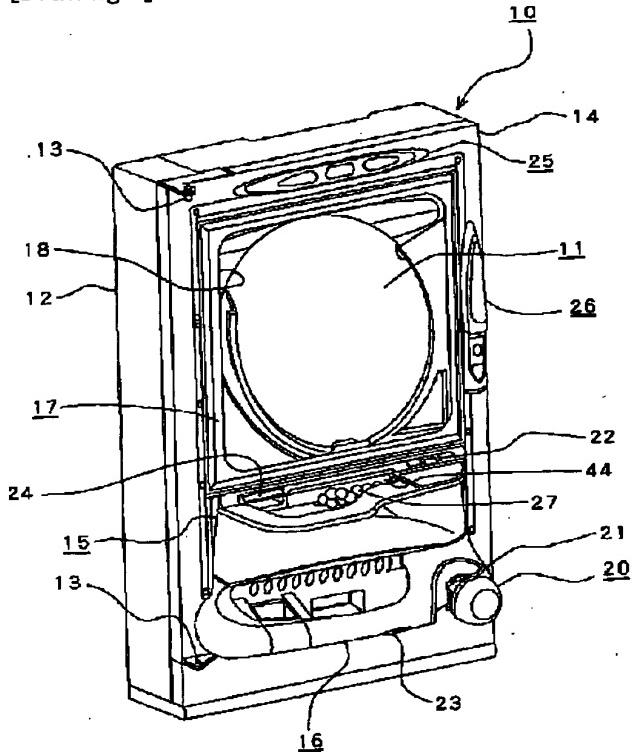
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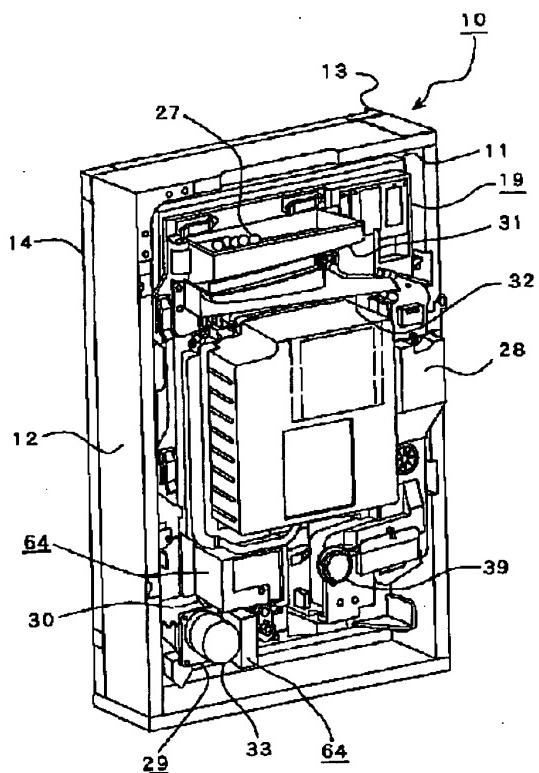
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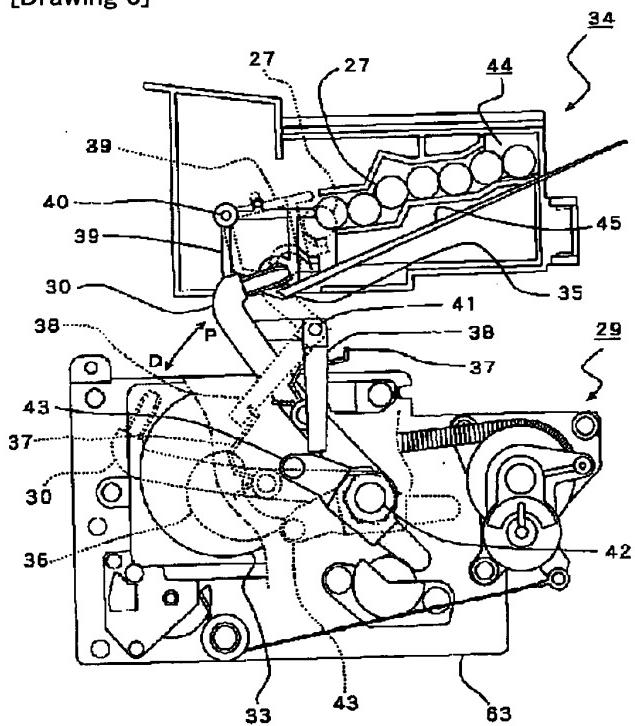
**DRAWINGS**

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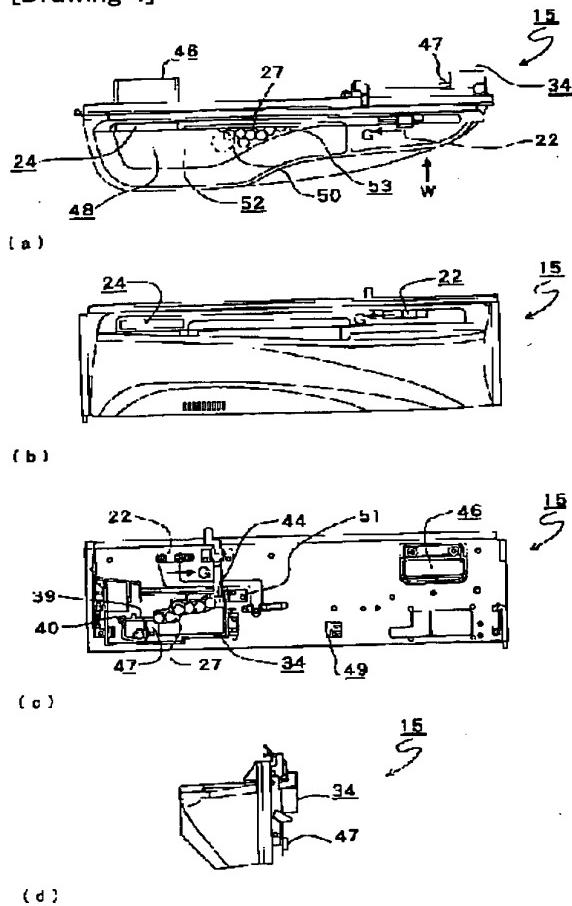
**[Drawing 1]****[Drawing 2]**



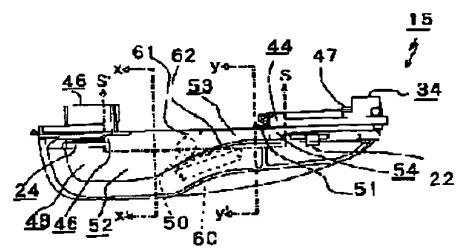
[Drawing 3]



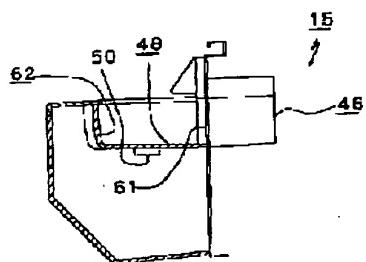
[Drawing 4]



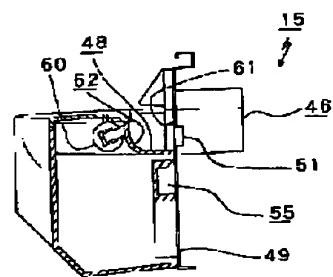
[Drawing 5]



( a )

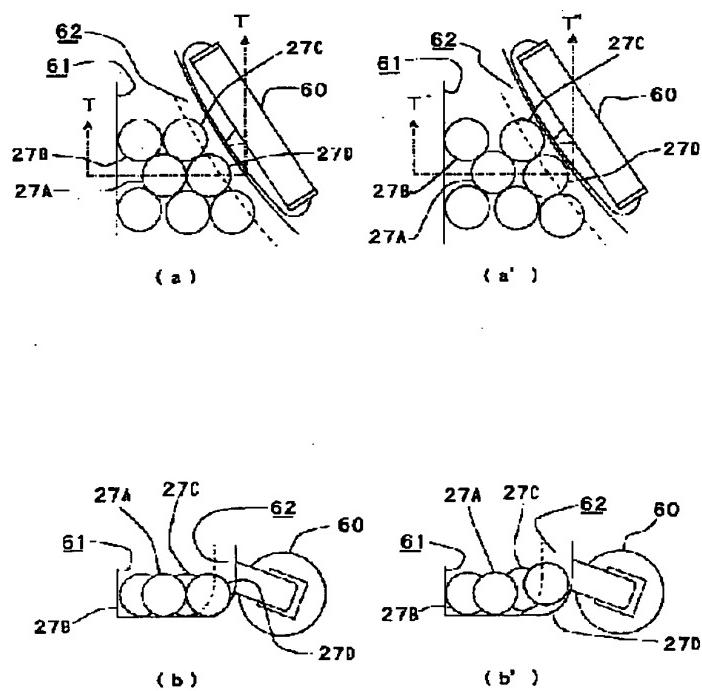


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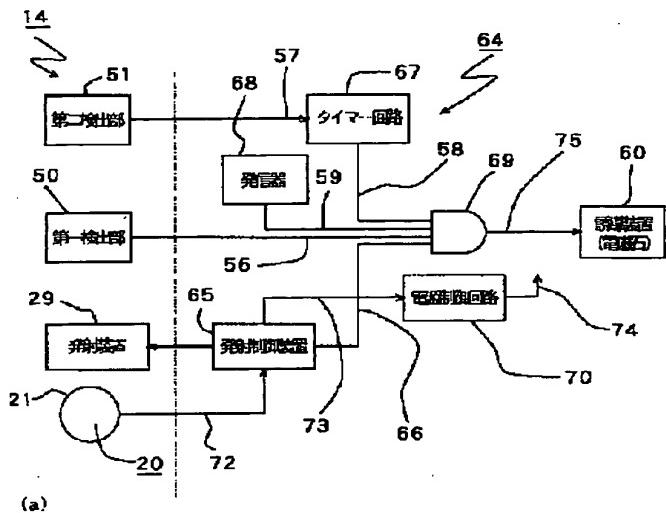


(c)

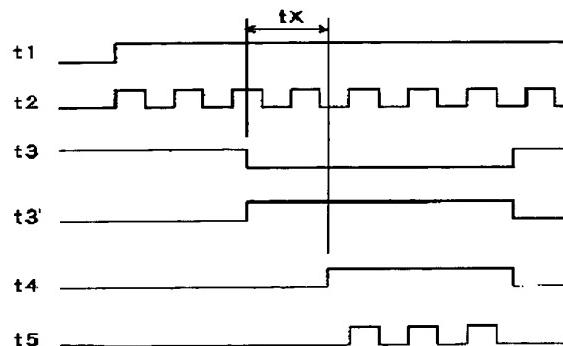
[Drawing 6]



[Drawing 7]

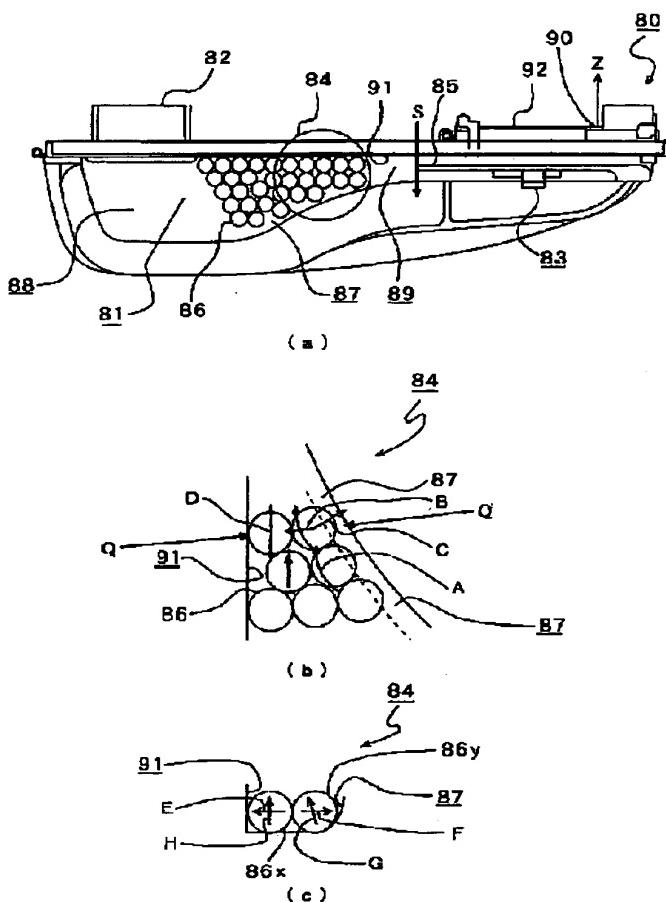


(a)



(b)

[Drawing 8]



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[Translation done.]